

State of Nebraska
Department of Health and Human
Services

Tuberculosis Program
Annual Report – 2004



Tuberculosis in Nebraska – 2004

Introduction

Tuberculosis, an infectious disease caused by the bacterium *Mycobacterium tuberculosis*, is one of the leading infectious causes of death in the world today. In the United States (US), Tuberculosis was the leading cause of death in 1900. With the advent of effective treatment, the US experienced a steady decline in cases until the mid-1980s. A resurgence of Tuberculosis occurred at that time, with national case rates peaking in the early 1990s. Through extensive public health interventions at the national, state, and local levels, Tuberculosis is once again on the decline.

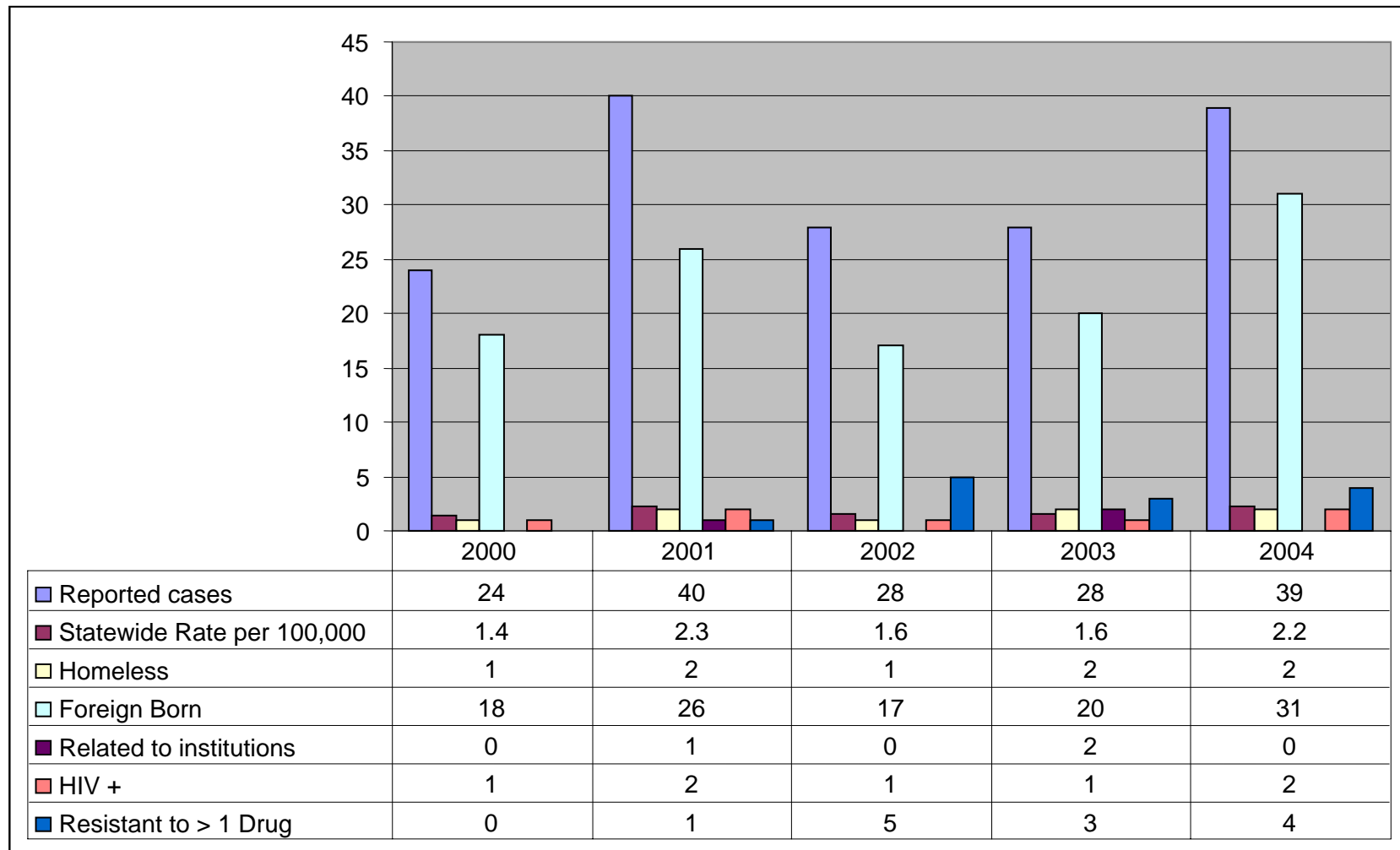
Tuberculosis in Nebraska: 2004 State Wide Summary

In 2003 Nebraska had a total of 28 cases of Tuberculosis, at a rate of 1.6 cases per 100,000 people. In 2004 Nebraska had a total of 39 cases of Tuberculosis, at rate of 2.2 cases per 100,000 people. This increase represents the second largest number of cases in Nebraska in the last five years. In 2003 Nebraska ranked 42nd in the nation in active Tuberculosis cases. Even with the increase of the reported cases in 2004, Nebraska continues to remain among the states with the lowest incidence.

Tuberculosis by Risk Factors

Of the 39 cases of Tuberculosis in Nebraska; two were homeless, 31 were foreign born, two were HIV+, and four were resistant to one or more treatment drugs. There were no cases that were related to institutions or nursing homes in 2004.

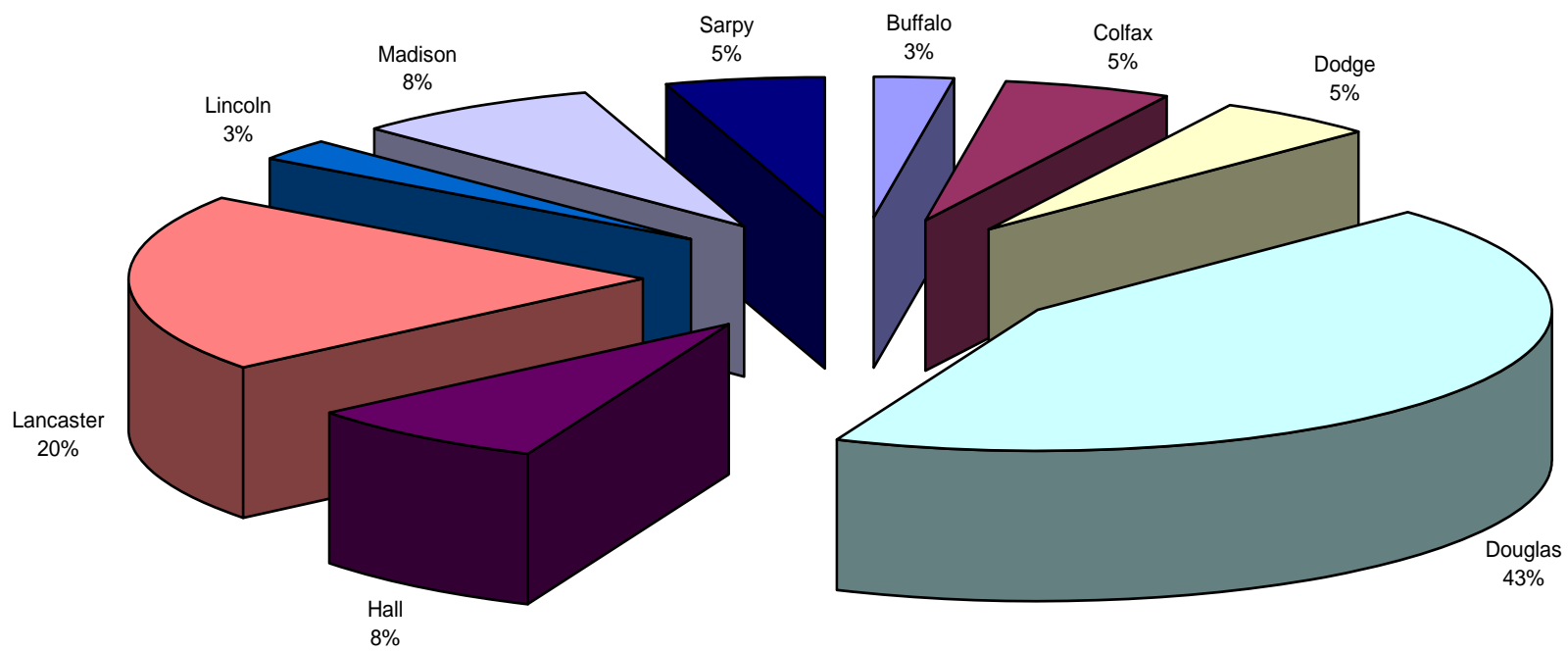
Tuberculosis in Nebraska 2000-2004 by Case Rate and Risk Factor



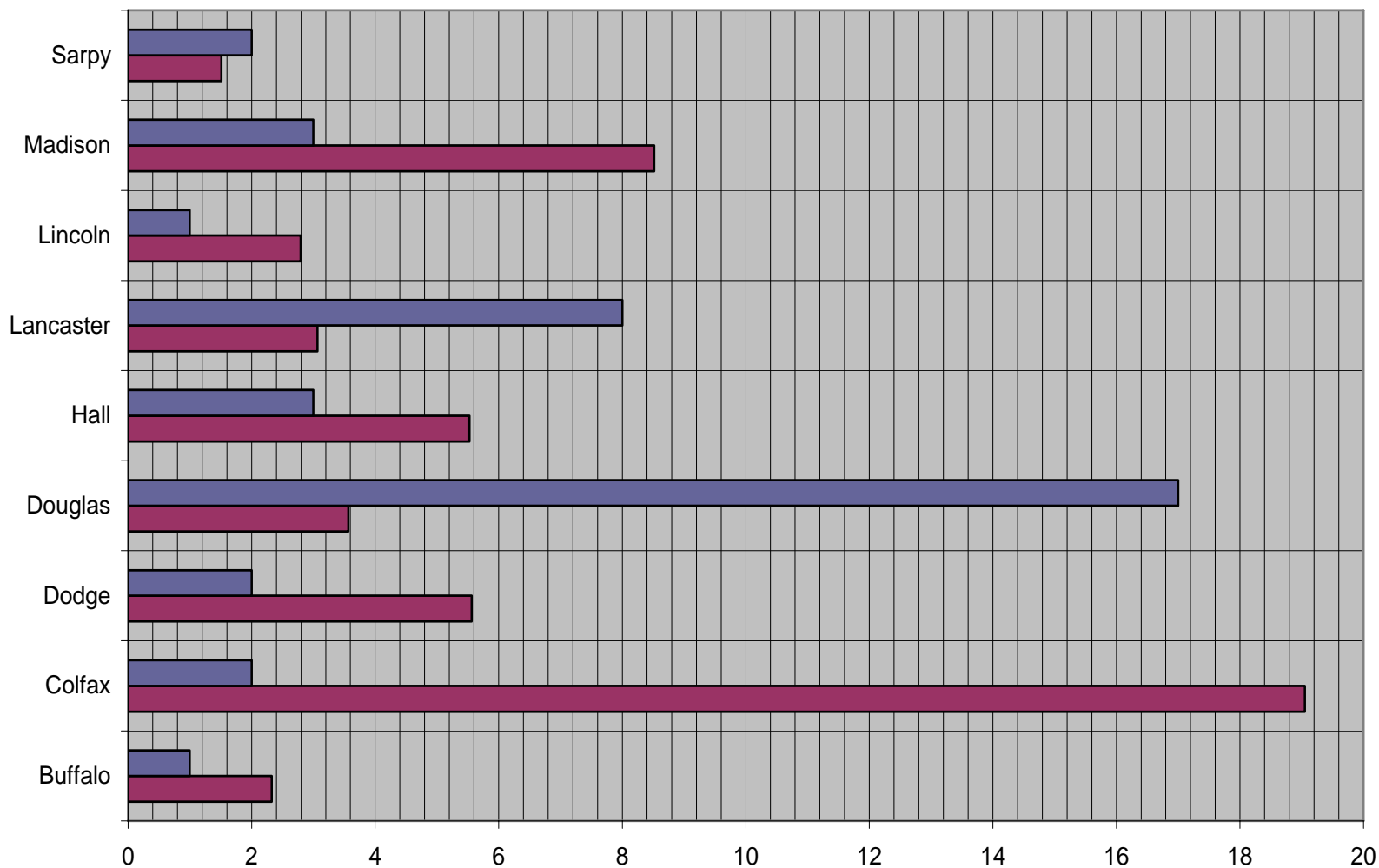
Tuberculosis in Nebraska 2004 by County

Of ninety-three counties within Nebraska, nine reported cases of active Tuberculosis in 2004. Douglas County ranks as Nebraska's most populated county and contains most of the Omaha metro area. They had case rate of 3.57/100,000 people with 17 cases of Tuberculosis reported. Lancaster County is the home to the city of Lincoln which is the State Capital and is Nebraska's second largest populated county. In 2004 Lancaster County had a case rate of 3.07/100,000 people with eight cases of Tuberculosis reported. Sarpy County ranks as Nebraska's third most populated county and includes some of the Omaha metro area. In 2004 they had a case rate of 1.51/100,000 people with two cases of Tuberculosis reported. Hall County is Nebraska's fourth most populated county, and in 2004 had a case rate of 5.53/100,000 people with three cases of Tuberculosis reported. Buffalo County is Nebraska's fifth most populated county, and in 2004 had a case rate of 2.32/100,000 people with one case of Tuberculosis reported. Dodge County is Nebraska's seventh most populated county, and in 2004 had a case rate of 5.56/100,000 with two cases of Tuberculosis reported. Madison County is Nebraska's eighth most populated county, and in 2004 had a case rate of 8.52/100,000 with three cases of Tuberculosis reported. Lincoln County is Nebraska's ninth most populated county, and in 2004 had a case rate of 2.80/100,000 with one case of Tuberculosis reported. Colfax County is Nebraska's twenty-sixth most populated county, and in 2004 had a case rate of 19.05/100,000 with two cases of Tuberculosis reported.

Tuberculosis in Nebraska 2004 by County



Tuberculosis in Nebraska 2004 Case Rate by County

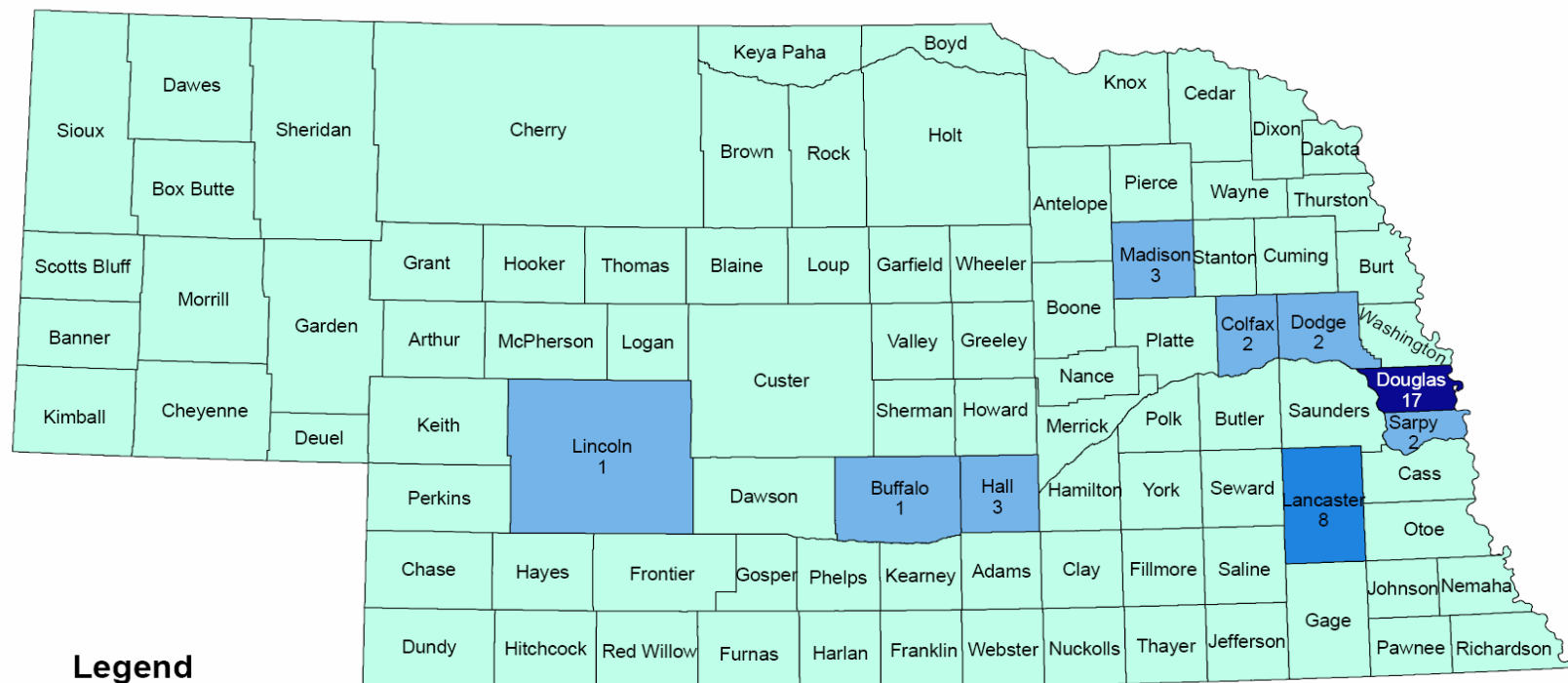


	Buffalo	Colfax	Dodge	Douglas	Hall	Lancaster	Lincoln	Madison	Sarpy
■ Number of Cases	1	2	2	17	3	8	1	3	2
■ Case Rate per 100,000	2.32	19.05	5.56	3.57	5.53	3.07	2.80	8.52	1.51

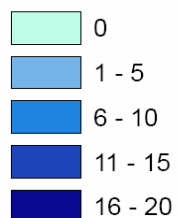
Tuberculosis in Nebraska by County – 2000-2004

County	2000	2001	2002	2003	2004	Totals
Adams	1	1				2
Antelope		1				1
Buffalo					1	1
Colfax					2	2
Dakota			1	3		4
Dawson	2			1		3
Dodge	2		1		2	5
Douglas	8	18	16	12	17	71
Hall	2	4	2	3	3	14
Knox			1			1
Lancaster	4	6	3	3	8	24
Lincoln					1	1
Madison	1	1	2		3	7
Platte		2				2
Polk				1		1
Saline				1		1
Sarpy	2	3			2	7
Scottsbluff				2		2
Sheridan	1		1			2
Thayer				1		1
Thurston	1	4				5
Webster			1			1
York				1		1
	24	40	28	28	39	159

Tuberculosis Cases by County, 2004



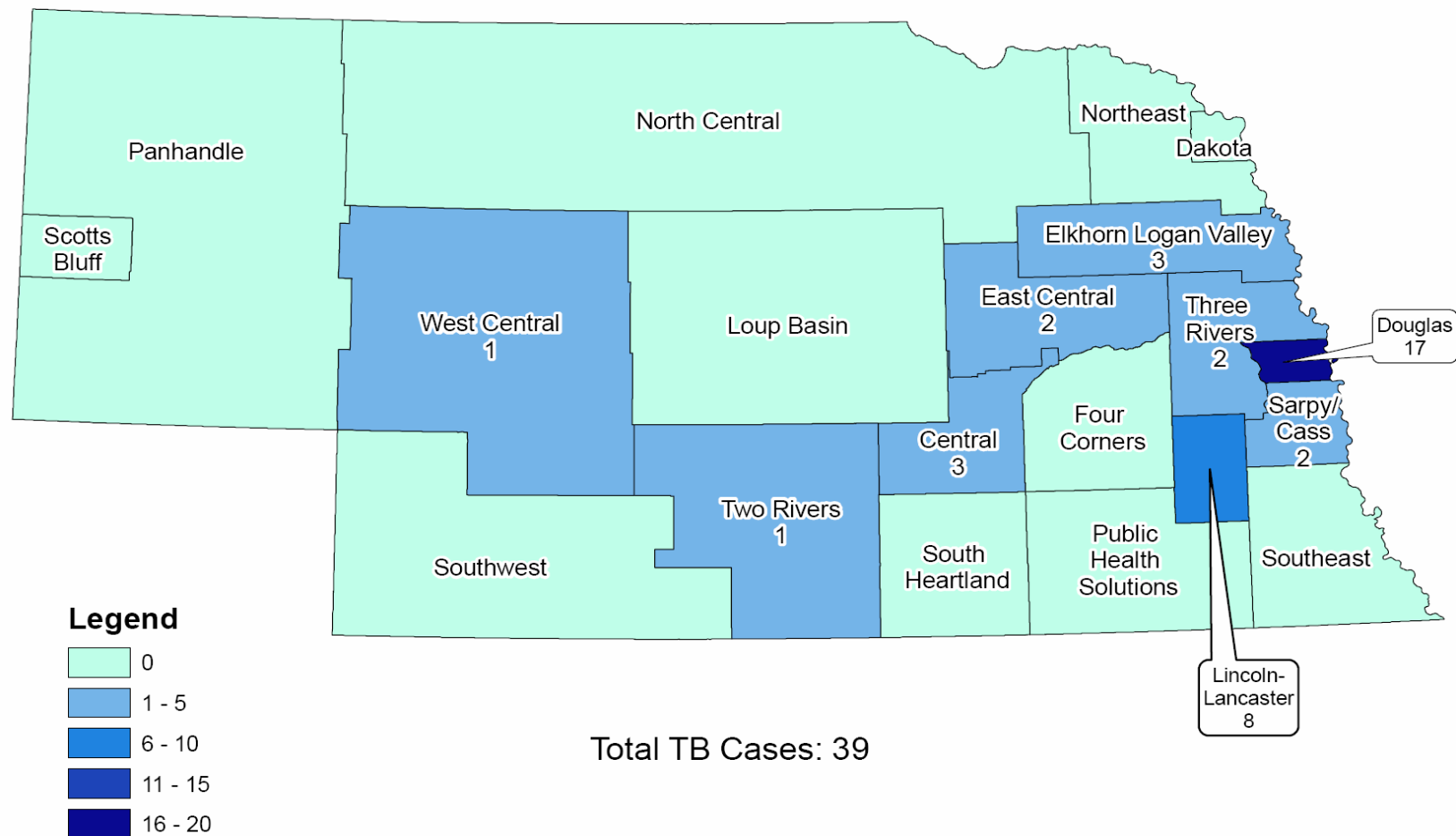
Legend



Total TB Cases: 39

Source: Nebraska Health and Human Services System

Tuberculosis Cases by Local Health Department, 2004



Source: Nebraska Health and Human Services System

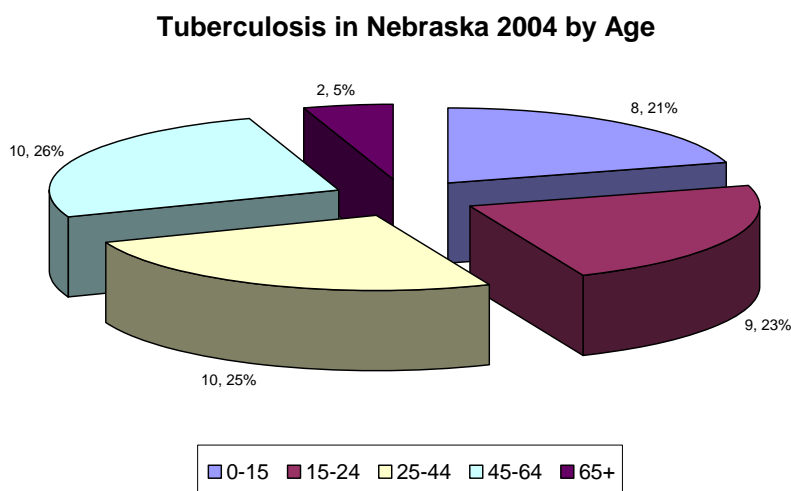
Tuberculosis in Nebraska 2004 by Age Group

The number of cases of Tuberculosis in Nebraska from 2000-2004, by age group, are represented in the following table.

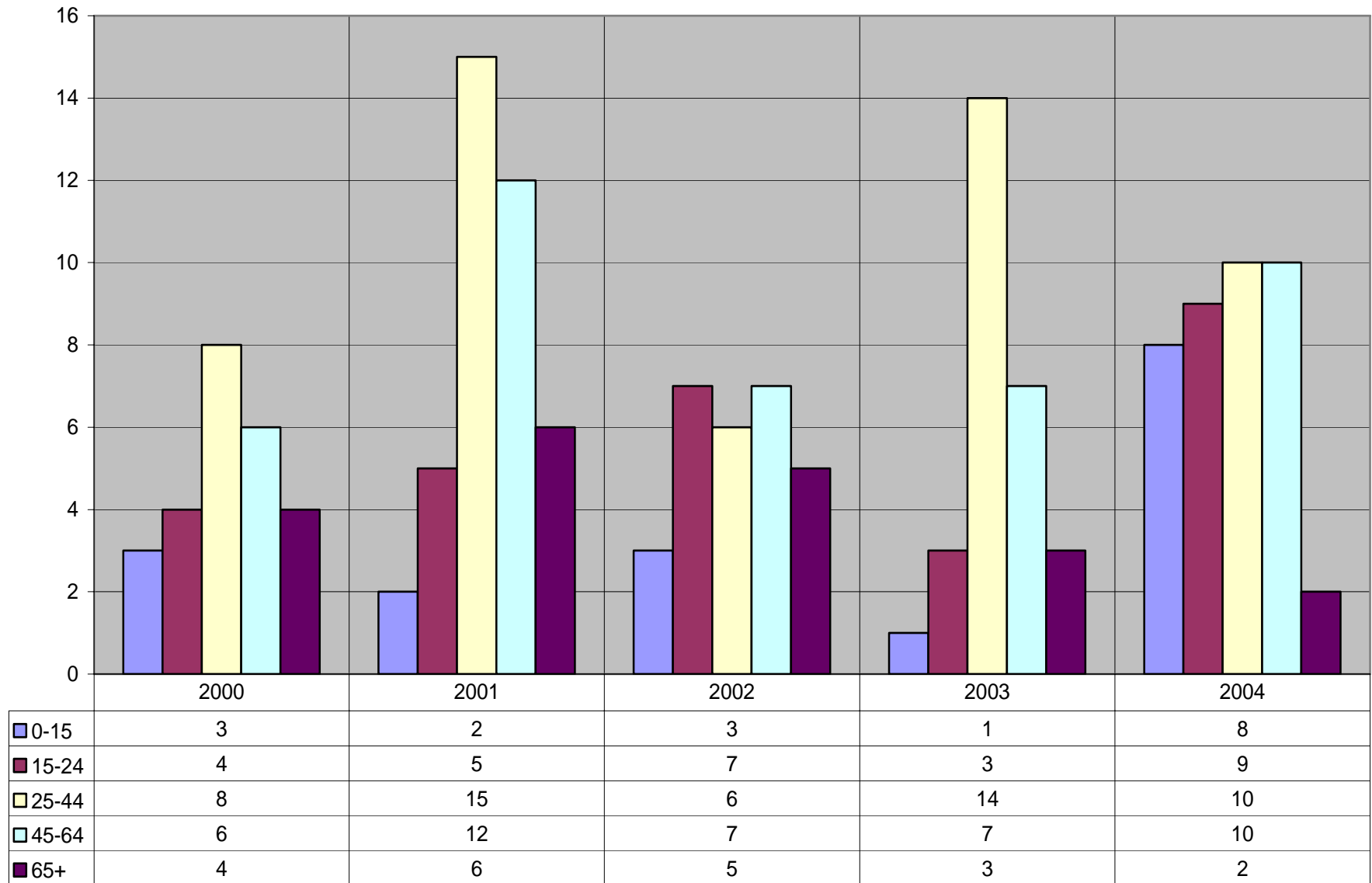
Age Range	2000	2001	2002	2003	2004
0-15	3	2	3	1	8
15-24	4	5	7	3	9
25-44	8	15	6	14	10
45-64	6	12	7	7	10
65+	4	6	5	3	2

In 2004, 25-44 and 45-64 year olds were the two highest incidence groups. Sixty Five year olds were the lowest incidence group.

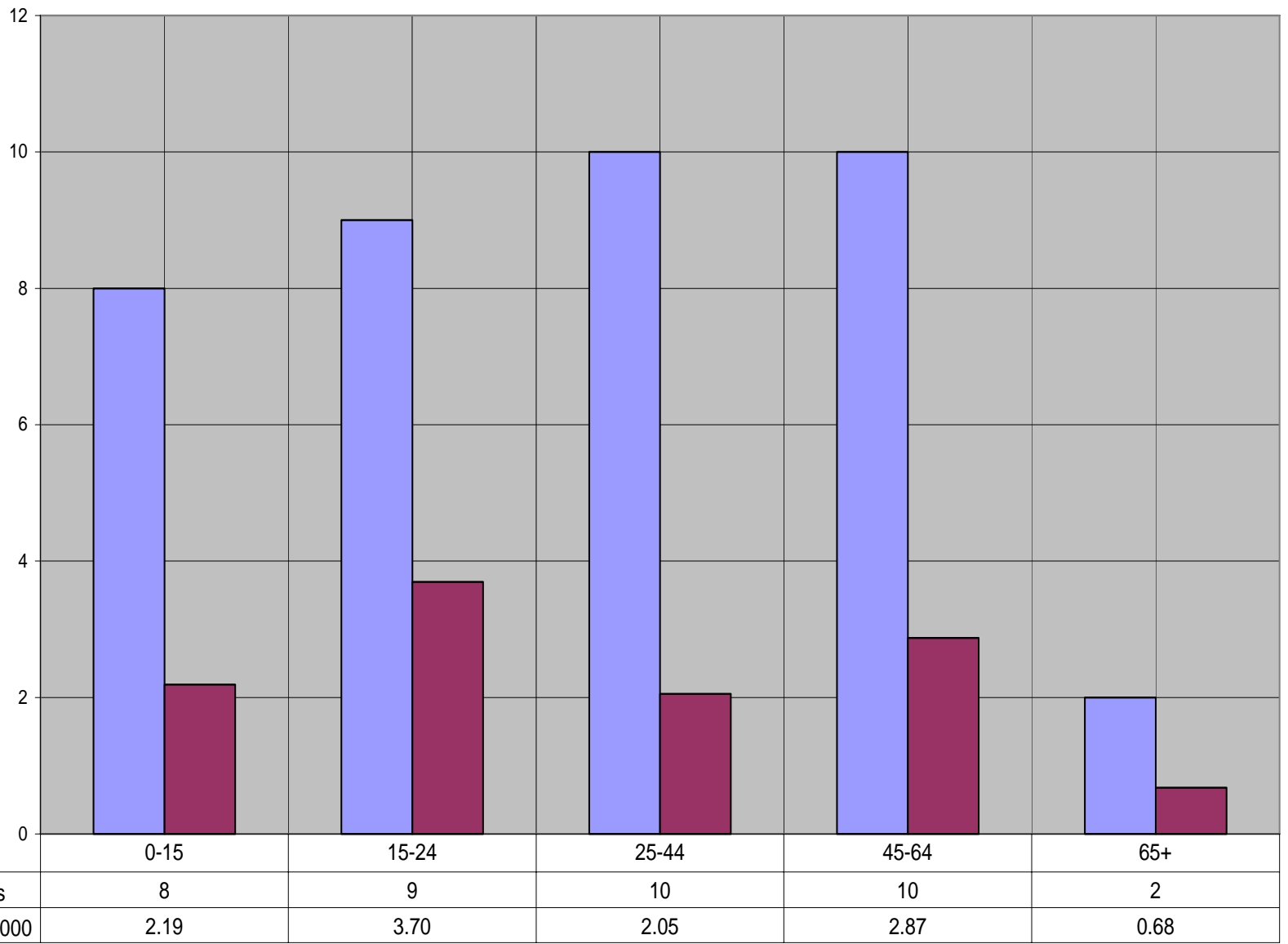
The 2004 the case rate for 0-15 year olds was 2.19/100,000; for 15-24 year olds it was 3.70/100,000; for 25-44 year olds it was 2.05/100,000; for 45-64 it was 2.87/100,000; and the case rate for 65+ years olds was .68/100,000.



Tuberculosis in Nebraska 2000-2004 by Age



Tuberculosis in Nebraska 2004 Case Rates by Age

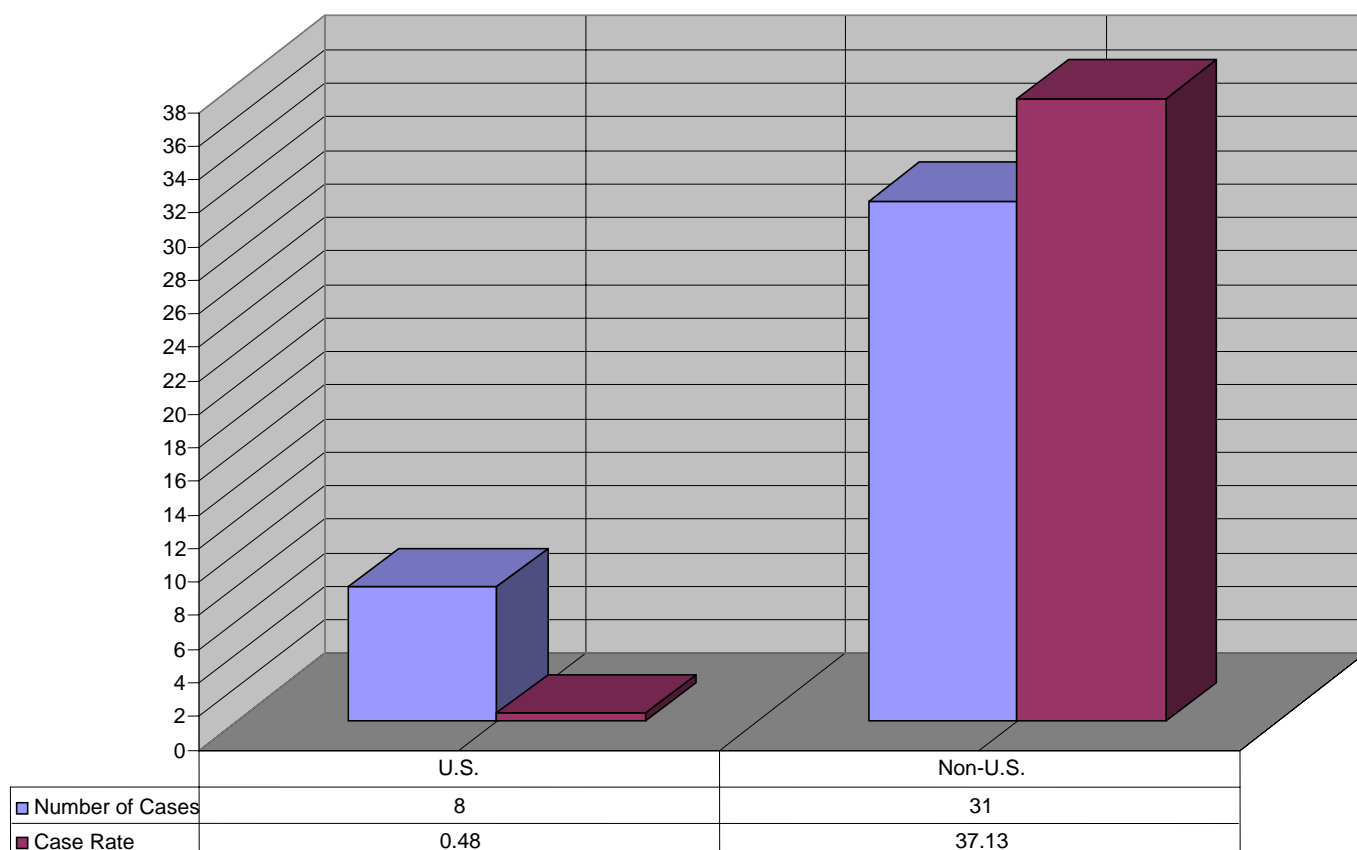


Tuberculosis in Nebraska 2004 by Country of Origin

Foreign born persons are at higher risk for exposure to or infection with *M. tuberculosis*; especially those who come from areas that have a high TB incidence such as Asia, Africa, Latin America, Eastern Europe and Russia. Many of these groups now reside in Nebraska. Other high-risk groups are close contacts of persons known to have TB and residents and employees of high-risk settings (e.g., correctional institutions, nursing homes, mental institutions, other long-term residential facilities and homeless shelters).

In 2004 the total number of U.S. born cases in Nebraska was eight, and the total number of foreign born was 31. According to the United States Census Bureau Nebraska's population consists of approximately 95% U.S. born and approximately 5% foreign born. The number of foreign born cases compared to the population yields a case rate of approximately 37/100,000 foreign born people, and .48/100,000 U.S. born people.

Tuberculosis in Nebraska 2004: Country of Origin Case Rates

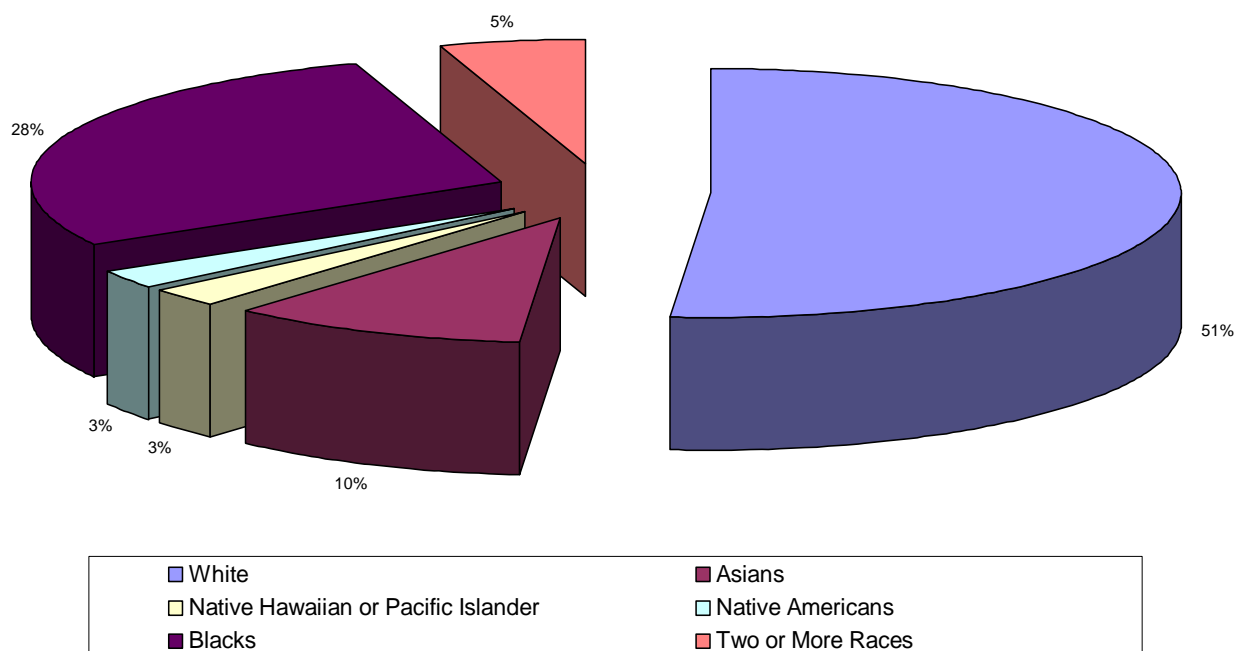


Tuberculosis in Nebraska 2004 by Race & Ethnicity

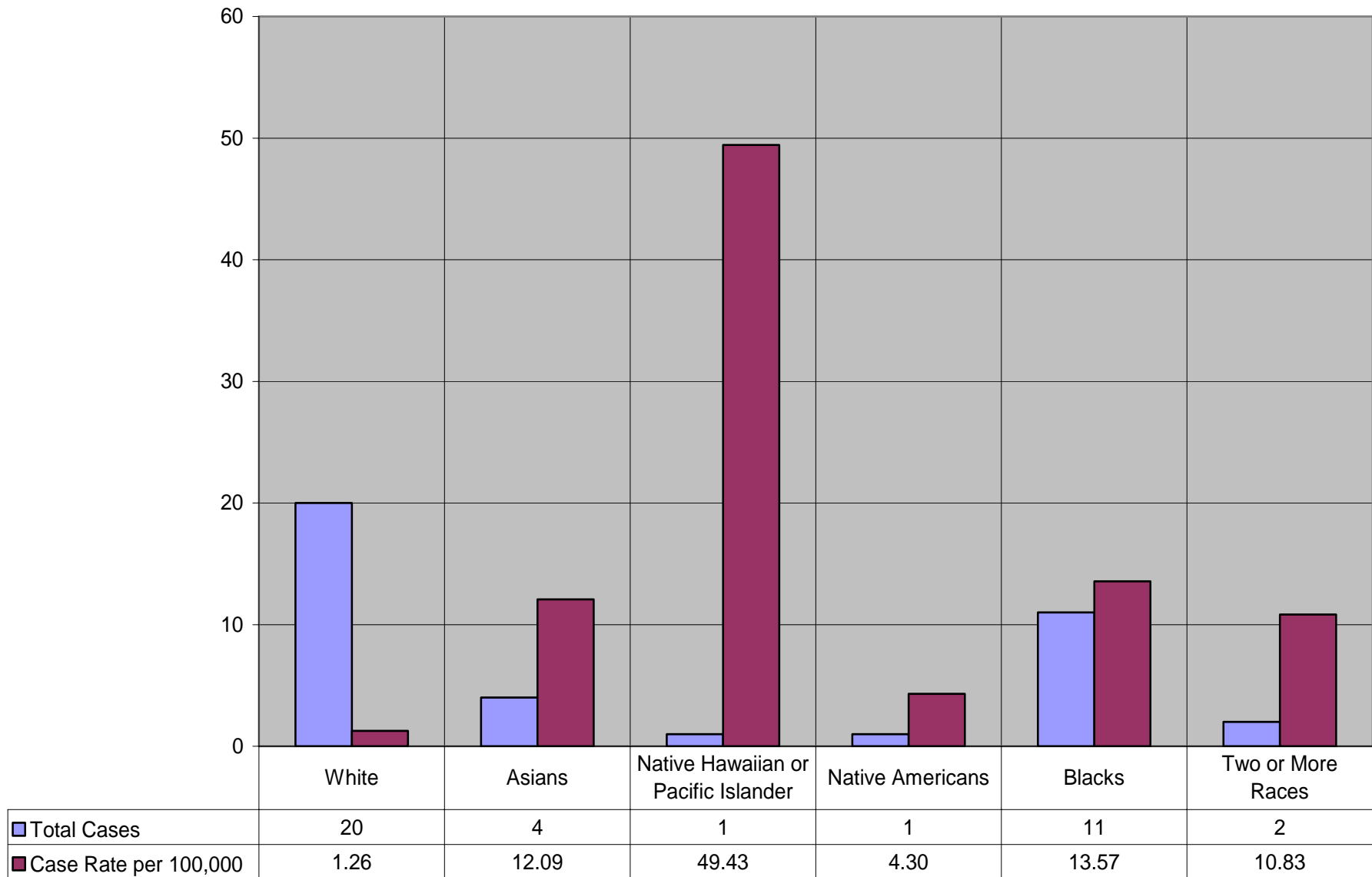
In Nebraska, the largest numbers of cases are reported in the white population; however, other racial populations have a significantly higher case rate. The Native Hawaiian or Pacific Islander population has the highest case rate of 49.43/100,000 and the Black or African American population has the second highest case rate of 15.06/100,000. Asians have a case rate of 14.3/100,000, and Native American's have a case rate of 6.14/100,000. White or Caucasians have a case rate of 1.25/100,000, and people who have claimed two or more races have a case rate of 10.83/100,000.

In 2004 Hispanics had a total number of 14 reported cases, and Non-Hispanics had a total of 25 reported cases. Nebraska's population is self reported as mostly Non-Hispanic, based on information from the U.S. Census Bureau. In 2004 the case rates of Non-Hispanics was 1.66/100,000; and the case rates of Hispanics was 13.76/100,000.

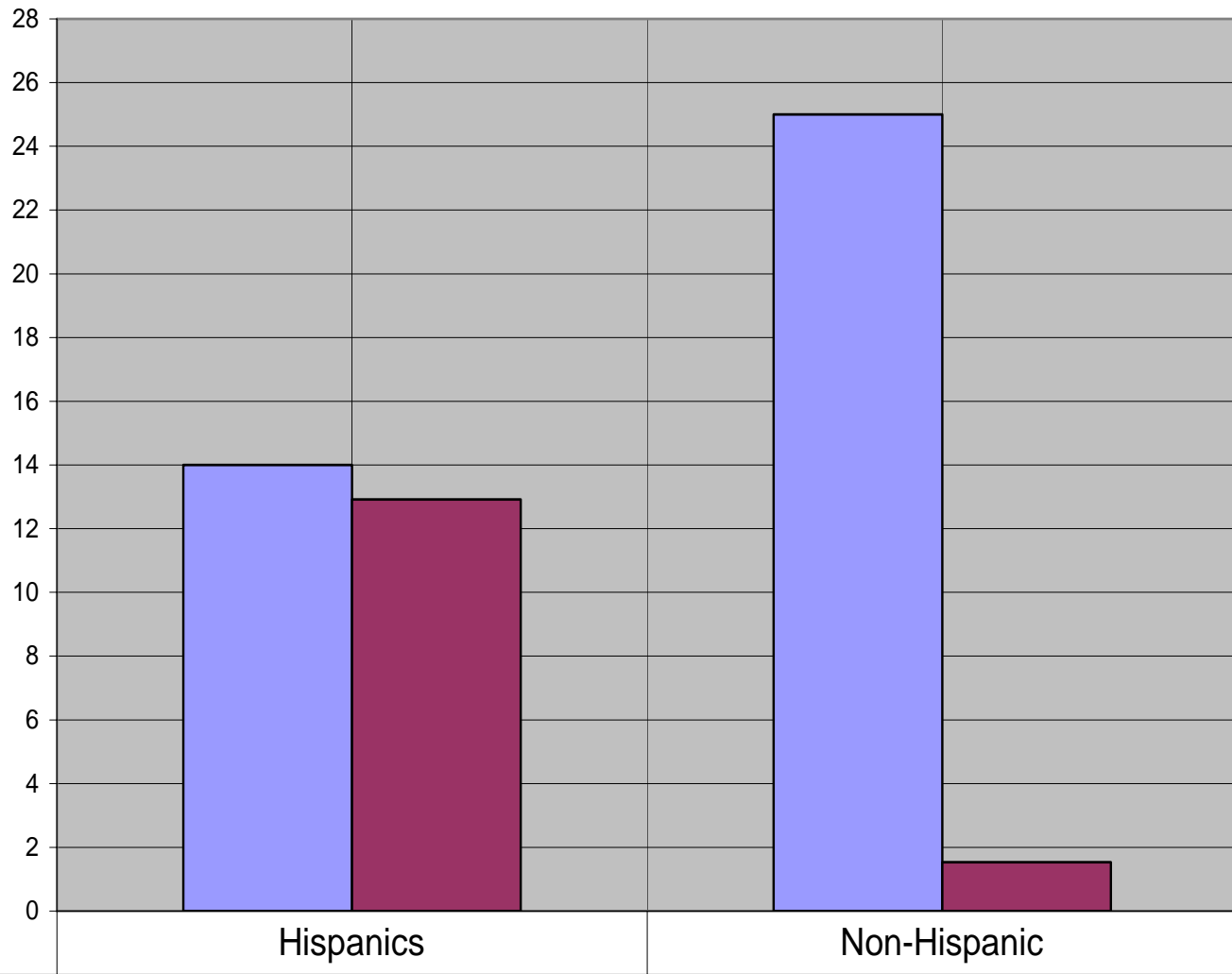
Tuberculosis in Nebraska 2004 by Race



Tuberculosis in Nebraska 2004 Case Rate by Race

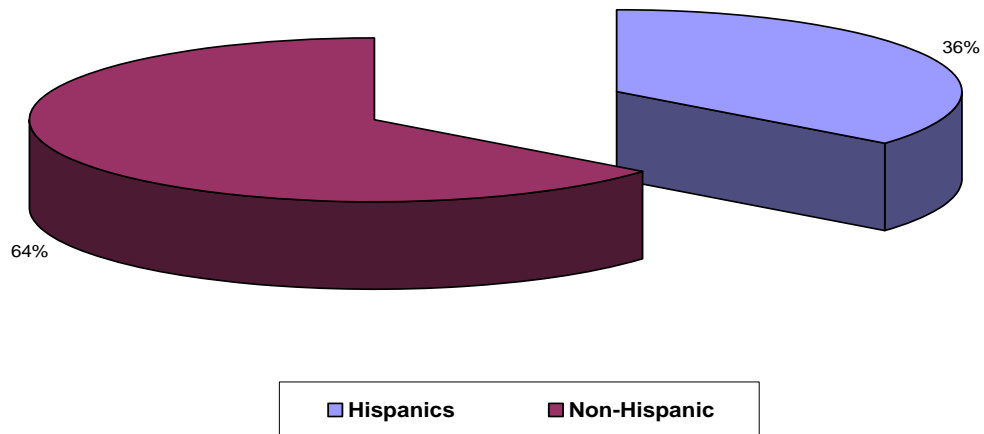


Tuberculosis in Nebraska 2004 Case Rates by Ethnicity



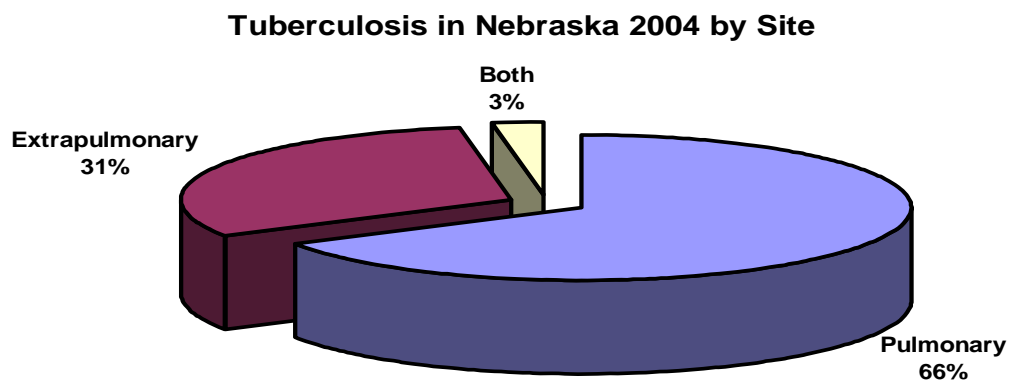
Total Cases	14	25
Case Rate per 100,000	12.92	1.53

Tuberculosis in Nebraska 2004 by Ethnicity



Tuberculosis in Nebraska 2004 by Site of Disease

Of the 39 cases of Tuberculosis reported in 2004, 12 or 31% had extra-pulmonary disease, 26 or 66%, had pulmonary disease, and one or 3% had disease both pulmonary and extra-pulmonary.



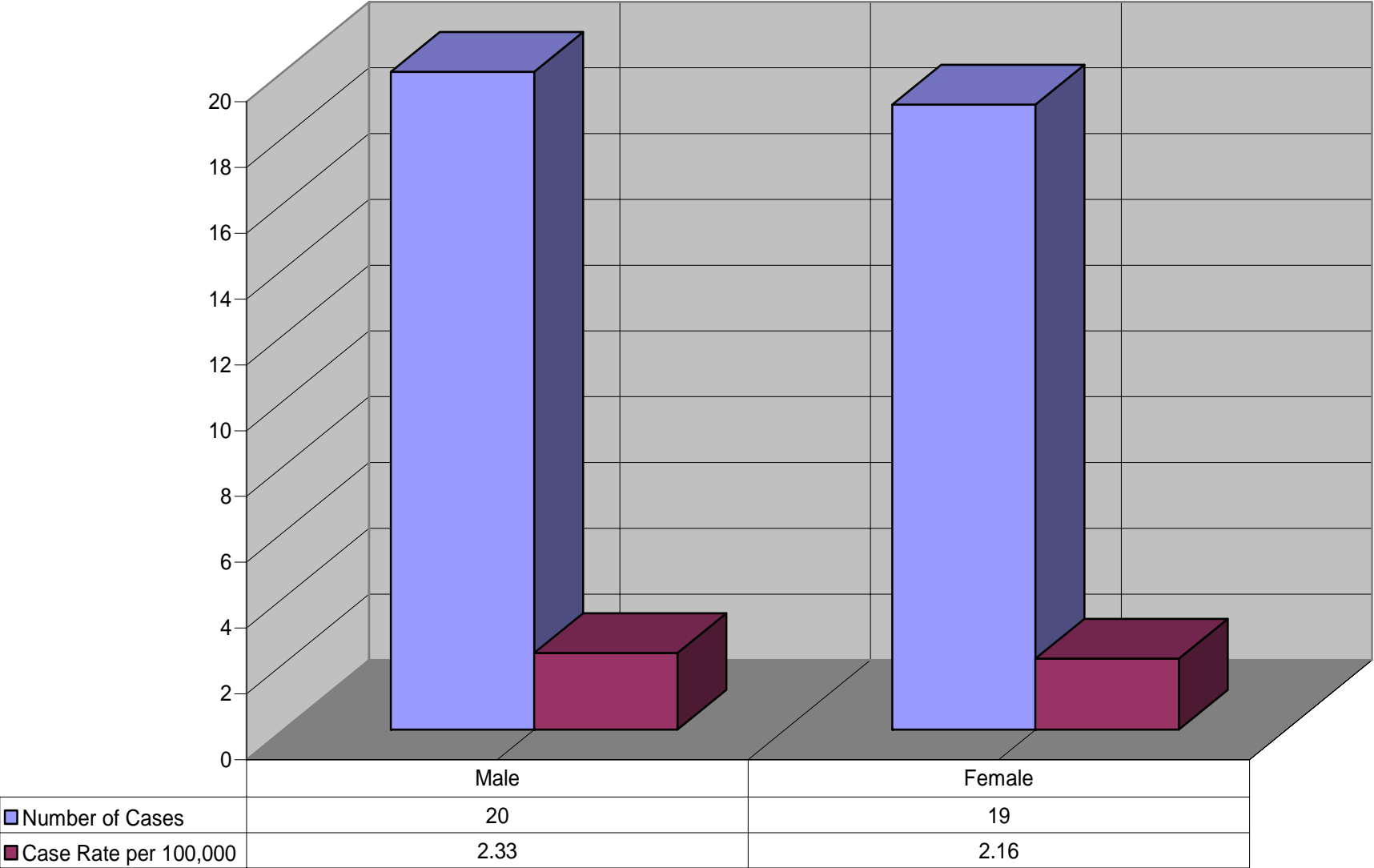
Tuberculosis in Nebraska 2004 by Verified Cases

Nebraska continues to use CDC's guidelines for both clinical and laboratory confirmed cases. In 2004 thirty (77%) were laboratory confirmed diagnosis, and nine (23%), were clinical diagnosis based on CDC guidelines.

Tuberculosis in Nebraska 2004 by Sex

In 2004 the number of male cases was 20 and the number of female cases was 19. According to the U.S. Census Bureau, in Nebraska, males represent approximately 49% of the population and females represent approximately 51% of the population. The case rate of males in 2004 was 2.33/100,000, and the case rate for females in 2004 was 2.16/100,000.

Tuberculosis in Nebraska 2004: Case Rates by Sex

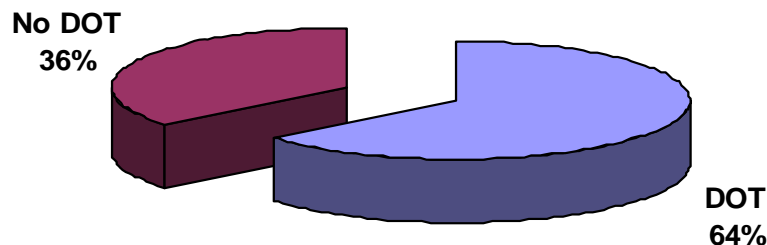


DOT & Tuberculosis

The major determinant of the outcome of treatment is patient adherence to the drug regimen. Careful attention should be paid to measures designed to foster adherence. These measures include something as simple as asking the patient about it on follow-up visits, to doing pill counts or urine tests to check for the presence of drug metabolites. Directly observed therapy can also be used, which is having someone observe the patient taking their medication. When directly observed therapy (DOT) is used, medications may be given intermittently.

In 2004 25 of the 39 cases of Tuberculosis received DOT to ensure completion of therapy by the patient. The progress of each case is monitored by either a Local Health Department or the State Health Department until the completion of treatment is achieved.

Tuberculosis in Nebraska 2004: DOT



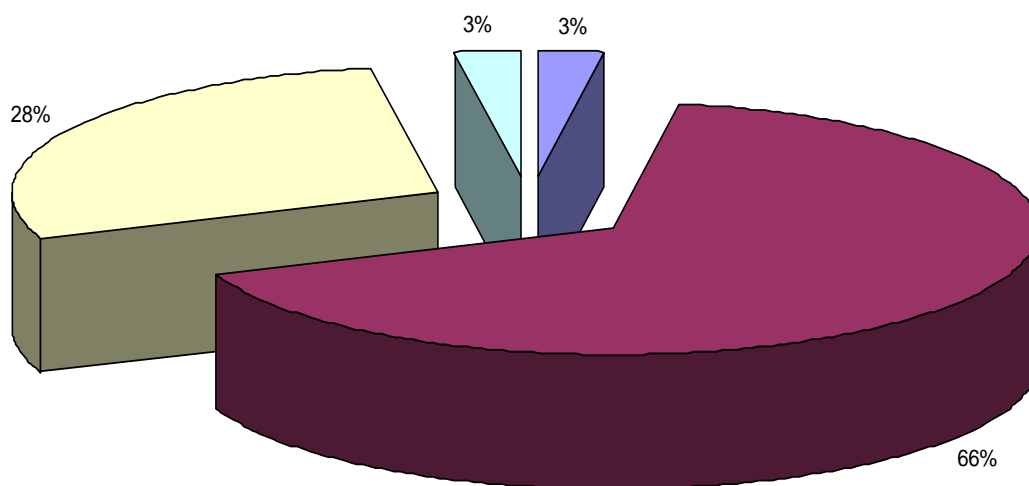
Tuberculosis by Drug, Drug Cost and Drug Regimen

Four drugs are recommended for the initial treatment regimen for TB disease. There are four recommended regimens for treating patients with tuberculosis caused by drug-susceptible organisms. Although these regimens are broadly applicable, there are modifications that should be made under specific circumstances. Each regimen has an initial phase of two months followed by a choice of several options for the continuation phase of either four or seven months.

The table below illustrates therapies in 2004 for Active Tuberculosis in Nebraska.

	Total
No Drugs	1
INH, RIF, PZA, and EMB or SM	26
Isoniazid, Rifampin and Pyrazinamide	11
Isoniazid and Rifampin	1
	39

Tuberculosis in Nebraska 2004: Drug Regimens



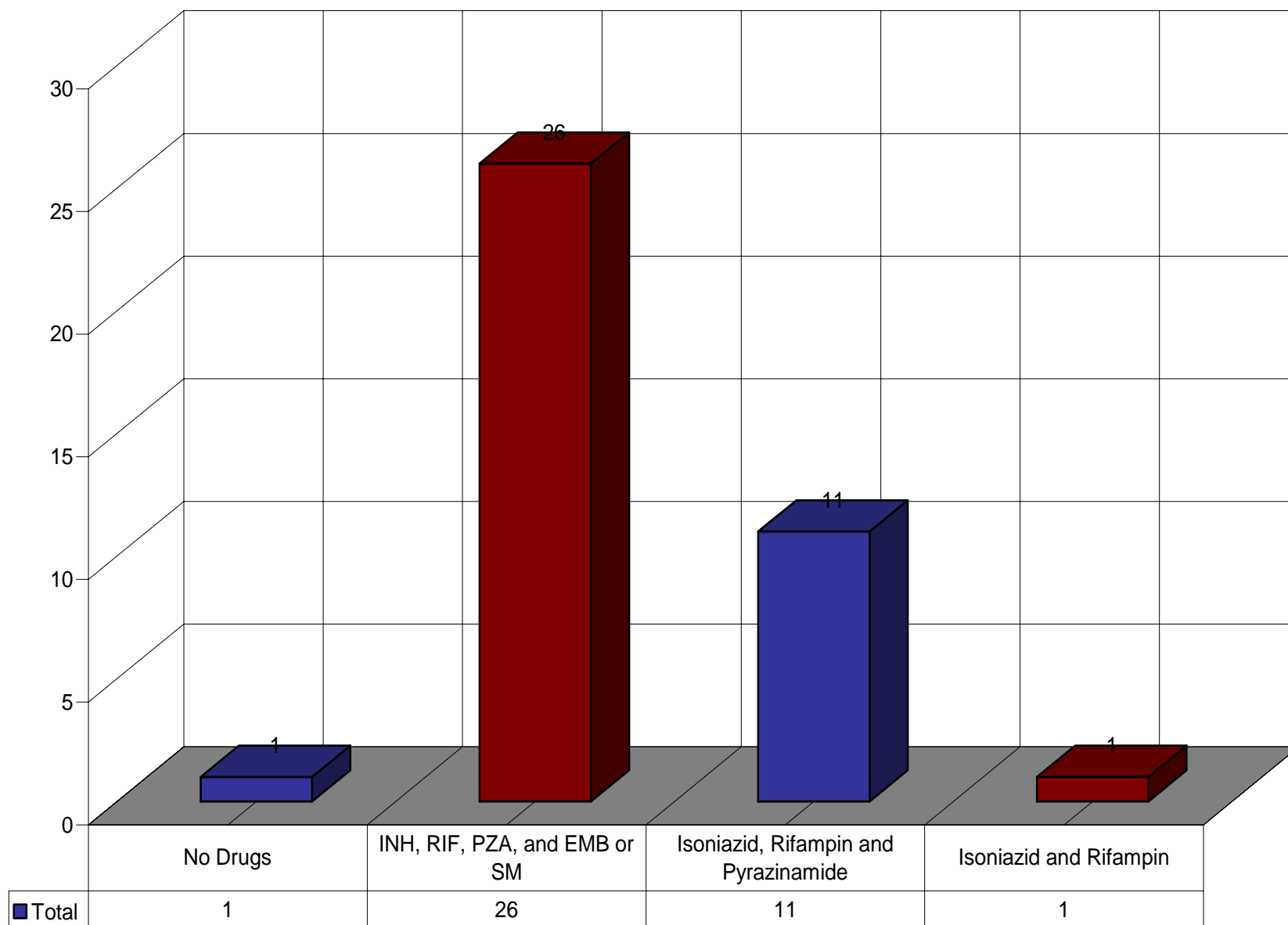
■ No Drugs

■ INH, RIF, PZA, and EMB or SM

■ Isoniazid, Rifampin and Pyrazinamide

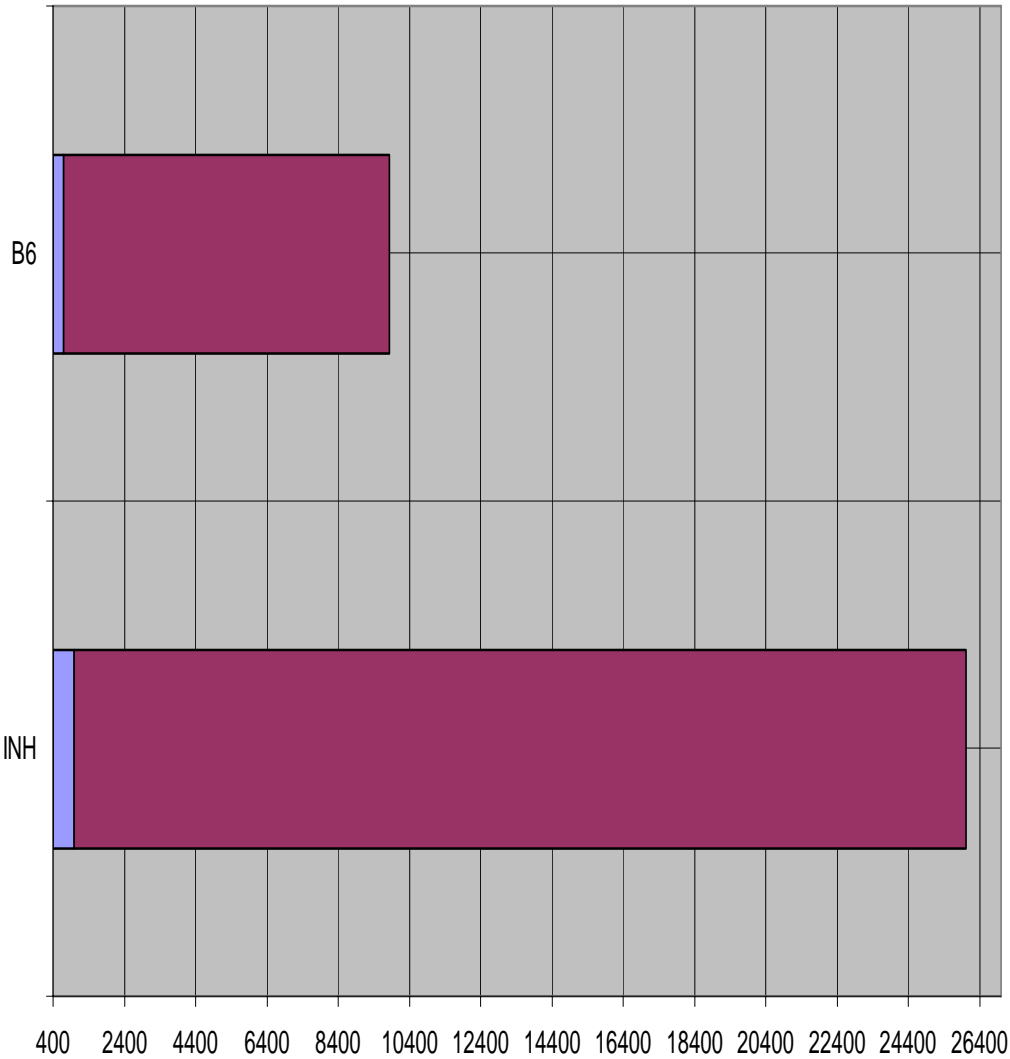
■ Isoniazid and Rifampin

Tuberculosis in Nebraska 2004: Initial Drug Regimen



In 2004 there were a total of 988 patients receiving INH; of those patients 693 also received vitamin B6 through the Tuberculosis Program. The end of year total for INH was \$25,028, and for Vitamin B6 it was \$9,138, for a total of \$34,166. The average cost per INH patient was \$25.33 and the average cost per vitamin B6 patient was \$13.19.

Tuberculosis in Nebraska 2004: INH/B6 Use and Cost



	INH	B6
*Total Cost	\$25,028	\$9,138
*Total Number of Patients Receiving Medications	988	693

Tuberculosis Program in Nebraska: Updates and Progress Report

The tuberculosis Program has drafted a Policies and Procedures Manual to better equip the State and Local Health Departments with the necessary information to handle cases of Tuberculosis.

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